3rd Quarterly Report – Public Page

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Contract Number: **BAA No. DTPH56-10-T-000019**

Prepared for: *DOT/PHMSA*

Project Title: Advanced Development of PipeGuard™ – Proactive Pipeline Damage Prevention System (Project #364)

Prepared by: NSEARCH/Northeast Gas Association

Contact Information: Angelo Fabiano (afabiano@northeastgas.org, 973.265.1900 ext 215)

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Public Page Section- Pipe Guard™ is a system originally developed as a general purpose sensor using seismic processing techniques to determine the presence of digging events (tunneling, drilling, etc.) near and around buried pipeline facilities. The technology inherent in PipeGuard™ is highly relevant for LDC and other natural gas operators as a tool to detect excavations in the vicinity of critical pipeline sections. The objective of the project is to transform PipeGuard™ from a general purpose seismic sensor into a practical operating tool for utility operators. Properly engineered, this platform will provide early warning of excavation events via wireless communications. The system must be simple to install and allow for permanent and semi-permanent monitoring options.

Results and Conclusions- The PipeGuard™ System test site with two PipeGuard™ units is being remotely monitored by the contractor, Magal-Senstar Inc. (MSI), via a web interface. The system installed in Stony Brook, NY using a wireless link setup is also being monitored by National Grid's Distribution Dispatch Center (approximately 30 miles away). The project team completed two additional field tests in April to capture signals of excavating events from shovel and mini-backhoes. Signal wave forms and detection distances were captured by MSI engineering personnel. Results based on the existing system indicate that hardware and software improvements are needed to achieve the detection goals. The current system is able to detect and provide alarms on equipment backhoe digging events up to 100 feet away from the sensing source. The target detection distance for the project, once improvements are made, is 300 feet.

During the period a Design Review and Planning meeting was held with MSI representatives and gas utility members attending. MSI provided details and schedules of the engineering/design tasks that will be completed during the next quarter. Efforts were

made to improve system remote communications to help assure that detection/alarmed events are being transferred to the Dispatch Center are consistent and reliable.

Shovel digging at test site

Backhoe excavation at test site

Plans for Future Activity- The existing PipeGuard™ system will be optimized for the site to assure that the most effective settings are selected. Work is currently underway to design and develop the Advanced PipeGuard™ system hardware and software to meet to achieve target goals. Work will include development of a library of equipment signatures, increasing detection sensitivity, streamlining hardware and selecting the second site.